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10/798,146	03/11/2004	Antony K. Spilman	30030483-02	5575

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EXAMINER	
LIU, LI	

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/798,146	SPILMAN ET AL.	
	Examiner	Art Unit	
	LI LIU	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-9,11,14 and 15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-9,11,14 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3, 5-9 and 11 have been considered but are moot in view of the new ground(s) of rejection.

1). Applicant's argument – "*Alb* is cited for the alleged disclosure of an optical system capable of transmitting and receiving signals at a plurality of rates to each other. Applicants disagree. *Alb* does not teach an optical system. *Alb* teaches a digital subscriber line (DSL) system that specifically uses the twisted-pair of copper wires between a central office and a customer premises modem".

Examiner's response – Alb et al clearly states that the links between the Central Office CO and the Customer Premises Equipment CPE can be made of optical fiber (column 4, lines 20-24). While the CO and CPE are linked by the optical fiber, the transceivers in the CO and CPE are the optical transceivers. That is, Alb teaches or suggests an optical system capable of transmitting and receiving signals at a plurality of rates to each other.

2). Applicant's argument – "Hiroshima discloses an apparatus for converting motion picture streams in a first Motion Pictures Experts Group (MPEG) format to transport streams in a second MPEG format different from the first MPEG format"; "one of ordinary skill in the art of optical networks is even less likely to consider select features from a hardware apparatus that converts MPEG1 streams into MPEG2 transport streams, when improving an optical network. While MPEG data can be

transported over an optical network, an optical network does not and should not convert data from a first format to a second format".

Examiner's response – Hiroshima et al teaches a scheme to change transmission rate by inserting invalid data (column 12, line 34-39). The combination of Alb et al and Gfeller and the new cited prior art Barlev et al teaches that the data rate can be varied based on the failure of synchronization. Since the rate change scheme by inserting invalid data is relatively simple and inexpensive, and the invalid data can be simply ignored by the receiver/decoder, it obvious to one skilled in the art to apply the rate change scheme of Hiroshima et al to the system of Alb et al and Barlev et al and Gfeller so that the data rate can be conveniently and effectively adjusted. The reference Hiroshima et al is used to teach/suggest to adjust data rate by inserting invalid data, the combination of Alb et al and Barlev et al and Gfeller and Hiroshima et al does not necessarily convert data from one format to another format.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, 5, 9, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alb et al (US 6,760,391) in view of the Hiroshima et al (US 5,801,781).

1). With regard to claim 1, Alb et al discloses a rate adaptive system for optical fibre-based communication networks (Figures 1 and 3-10, column 4, line 20-24, Alb et al discloses that the links between the Central Office CO and the Customer Premises Equipment CPE can be made of optical fiber) comprising:

a plurality of optical transceivers (305, 310, 405 and 410 in Figures 3 and 4, column 4, line 20-24, as the CO and CPE are linked by the optical fiber, the transceivers in the CO and CPE are the optical transceivers) capable of transmitting and receiving signals at a plurality of rates to each other (e.g., Figure 6), and

an optical fiber linked to said transceivers (link 12-14 in Figures 1, 3 and 4, column 4, line 20-24),

wherein said system is configured to cause said transceivers to transmit and receive signals at an initial rate and to adapt said initial rate based upon an error condition (Figures 5-10, error count and SNR are used to determine the rate change, column 6, line 12-27, column 13 line 36-51) by causing said transceivers to transmit and receive at different rate (Figures 5, 6, 9 and 10; e.g., Figures 5 and 6 shown that the line rate is based on the SNR or size of error; column 5 line 33-47 and column 19 line 27-35 etc).

But, Alb et al does not expressly disclose that the error condition is responsive to a failure to synchronize a received signal to a transmitted signal; and a rate of data being forwarded per unit time being adjusted by inserting invalid data which can be identified and ignored by a downstream process; and wherein said initial rate is lowered according to a predefined percentage of said initial rate in response to said failure to

synchronize a received signal to a transmitted signal to avoid the overhead associated with auto-negotiation methods that operate over a control channel.

However, Barlev et al discloses a mechanism in which the data rate is varied when a loss of synchronization occurs (Figure 13, especially step 460, column 36, line 17-31). By just monitoring the loss of synchronization, the procedure of rate change can be made simpler because a control channel is no longer needed and the overhead associated with auto-negotiation methods can be avoided. Alb et al discloses that bidirectional transmission, therefore, it would be obvious to one skilled in the art to apply the rate change scheme as taught by Barlev et al to the system of Alb et al so that the failure of synchronizing a received signal to a transmitted signal can be used as indication for changing the line rate, and then the rate change mechanism can be made easier and convenient, and no control channel as well as the overhead is needed.

But, Alb et al and Barlev et al do not expressly disclose the rate is lowered according to a predefined percentage of said initial rate.

Another prior art, Gfeller et al, in the same field of endeavor, discloses a system with adaptive data rates, and four predetermined rates (10 MBPS, 1 MBPS, 100 KBPS and 10 KBPS in Figure 6, column 10, line 3-9) are used for changing the data rate; that is, Gfeller et al teaches wherein the initial rate is lowered according to a predefined percentage of said initial rate in response to a failure. Gfeller provides an enhanced flexibility in system design and simplification of integration of systems operating with different data rate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the rate changing in predetermined

percentage as taught by Gfeller to the optical communication system of Alb et al and Barlev et al so that an enhanced flexibility in system design and simplification of integration of systems operating with different data rate can be obtained.

But, Alb et al and Barlev et al and Gfeller et al do not expressly disclose to change the data rate by inserting invalid data.

However, to change a data rate by inserting invalid data is well known in the art. Hiroshima et al teaches such scheme, wherein a rate of data being forwarded per unit time is adjusted by inserting invalid data (column 12, line 34-39, a invalid packet is inserted to vary the transmission rate; also refer to column 3, line 9-57, and column 11 line 28-46) which can be identified and ignored by a downstream process (column 12, line 39-46, "it is consequently recognized as an invalid packet from the packet ID and, further, it can be recognized that the payload portion indicates the invalid data by decoding the adaptation field. Thus, the process of the invalid packet is ignored in the decoder").

Hiroshima et al teaches a simple, cost-effective and convenient scheme for adjusting data. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the rate adjusting scheme by inserting the invalid data as taught by Hiroshima et al to the system of Alb et al and Barlev et al and Gfeller et al so that the data rate can be conveniently and effectively adjusted.

2). With regard to claim 3, Alb et al and Barlev et al and Gfeller et al and Hiroshima et al disclose all of the subject matter as applied to claim 1 above. And Alb et al further discloses wherein said system is further configured to calculate an error

coefficient (SNR or BER is calculated, Figures 5-9, column 13 line 35 to column 18 line 3) based on said received signals, and said error condition comprises said error coefficient exceeding a predefined range (Figure 5, threshold is used for adjusting the rate).

3). With regard to claim 5, Alb et al and Barlev et al and Gfeller et al and Hiroshima et al disclose all of the subject matter as applied to claim 1 above. But, Alb et al and Barlev et al and Gfeller et al and Hiroshima et al do not expressly disclose wherein said percentages are selected from the group of 75, 50, and or 25 percent of said initial rate.

Although Alb et al and Barlev et al and Gfeller et al and Hiroshima et al don't disclose the specific percentages, such limitations are merely a matter of design choice and would have been obvious in the system of Alb et al and Barlev et al and Gfeller et al and Hiroshima et al. Gefeller discloses four predetermined rates (10 MBPS, 1 MBPS, 100 KBPS and 10 KBPS in Figure 6, column 10, line 3-9). The limitation in claim 5 does not define a patentably distinct invention over that in Alb et al and Barlev et al and Gfeller et al and Hiroshima et al since both the invention as a whole and Alb et al and Gfeller are directed to downshift the rate in predetermined percentages while link failure occurs. Therefore, to downshift by 75, 50 or 25 % or other percentages would have been a matter of obvious design choice to one of ordinary skill in the art.

4). With regard to claim 9, Alb et al discloses a rate adaptive method for operating an optical communication network (Figures 1 and 3-10, column 4, line 20-24,

Alb et al discloses that the links between the Central Office CO and the Customer Premises Equipment CPE can be made of optical fiber) comprising:

transmitting data at an initial rate (Figures 3-9, transmitter 310 and 410 transmit signal at a initial rate, and the BER or SNR is calculated for changing of rate, column 5 line 33-47, column 13 line 35 to column 18 line 3, and column 19 line 27-35),

receiving said data at initial rate (Figures 3-9, receiver 305 and 405 receive signal at a initial rate, and the BER or SNR is calculated for changing of rate, column 5 line 33-47, column 13 line 35 to column 18 line 3, and column 19 line 27-35),

evaluating said data responsive to a failure (error count and SNR, Figures 5-10, and column 6 line 12-27, column 13 line 36-51) to determine if an error condition exists (e.g., Figures 3 and 4, the SNR Measurement and Decoder with error counting element determine the error condition), and

adapting said rate based upon said evaluation by transmitting and receiving at different rate (Figures 5, 6, 9 and 10; e.g., Figures 5 and 6 shown that the line rate is based on the SNR or size of error; column 5 line 33-47 and column 19 line 27-35 etc).

But, Alb et al does not expressly disclose: evaluating the data responsive to a failure to synchronize a received signal to a transmitted signal, and adapting the rate by inserting invalid data which can be identified and ignored by a downstream process; and adapting the rate comprises lowering said initial rate according to a predefined percentage of said initial rate in response to said failure to synchronize a received signal to a transmitted signal to avoid the overhead associated with auto-negotiation methods that operate over a control channel.

However, Barlev et al discloses a mechanism in which the data rate is varied when a loss of synchronization occurs (Figure 13, especially step 460, column 36, line 17-31). By just monitoring the loss of synchronization, the procedure of rate change can be made simpler because a control channel is no longer needed and the overhead associated with auto-negotiation methods can be avoided. Alb et al discloses a bidirectional transmission, therefore, it would be obvious to one skilled in the art to apply the rate change scheme as taught by Barlev et al to the method of Alb et al so that the failure of synchronizing a received signal to a transmitted signal can be used as the indication for changing the line rate, and then the rate change mechanism can be made easier and convenient, and no control channel as well as the overhead is needed.

But, Alb et al and Barlev et al do not expressly disclose the rate is lowered according to a predefined percentage of said initial rate.

Another prior art, Gfeller et al, in the same field of endeavor, discloses a system with adaptive data rates, and four predetermined rates (10 MBPS, 1 MBPS, 100 KBPS and 10 KBPS in Figure 6, column 10, line 3-9) are used for changing the data rate; that is, Gfeller et al teaches wherein the initial rate is lowered according to a predefined percentage of said initial rate in response to a failure. Gfeller provides an enhanced flexibility in system design and simplification of integration of systems operating with different data rate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the rate changing in predetermined percentage as taught by Gfeller to the optical communication method of Alb et al and

Barlev et al so that an enhanced flexibility in system design and simplification of integration of systems operating with different data rate can be obtained.

But, Alb et al and Barlev et al and Gfeller et al do not expressly disclose to change the data rate by inserting invalid data.

However, to change a data rate by inserting invalid data is well known in the art. Hiroshima et al teaches such scheme, wherein a rate of data being forwarded per unit time is adjusted by inserting invalid data (column 12, line 34-39, a invalid packet is inserted to vary the transmission rate; also refer to column 3, line 9-57, and column 11 line 28-46) which can be identified and ignored by a downstream process (column 12, line 39-46, "it is consequently recognized as an invalid packet from the packet ID and, further, it can be recognized that the payload portion indicates the invalid data by decoding the adaptation field. Thus, the process of the invalid packet is ignored in the decoder").

Hiroshima et al teaches a simple, cost-effective and convenient scheme for adjusting data. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the rate adjusting method by inserting the invalid data as taught by Hiroshima et al to the method of Alb et al and Barlev et al and Gfeller et al so that the data rate can be conveniently and effectively adjusted.

5). With regard to claims 14 and 15, Alb et al and Barlev et al and Gfeller et al and Hiroshima et al discloses all of the subject matter as applied to claim 1 and 9 above. But, Alb et al and Barlev et al and Gfeller et al and Hiroshima et al do not

expressly disclose the system and method comprises identifying a link in the optical fibre-based communication networks for an upgrade.

However, the combination of Alb et al and Barlev et al and Gfeller et al and Hiroshima et al teaches/suggests a rate adaptive optical communication system, and the loss of synchronization is monitored and used to determine whether data rate should be changed. Therefore, whenever a system with a new data rate is implemented in the communication networks, the current system will identify or recognize it based on the "loss of synchronization". That is, the system of Alb et al and Barlev et al and Gfeller et al and Hiroshima et al can be used to identify a link in the optical fibre-based communication networks for an upgrade; and the combination of Alb et al and Barlev et al and Gfeller et al and Hiroshima et al can fully perform the function of identifying a link in the optical fibre-based communication networks for an upgrade.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alb et al and Barlev et al and Gfeller et al and Hiroshima et al as applied to claim 1 above, and in further view of the applicant admitted prior art (AAPA: Brief Description of Related Development, page 2 line 1-7) and Stener (US 6,690,650) .

Alb et al and Barlev et al and Gfeller et al and Hiroshima et al disclose all of the subject matter as applied to claim 1 above. But Alb et al does not disclose wherein said initial rate is 10 Gb/s.

However, as admitted by applicant: "currently there is a vast network of installed optical fiber links of various lengths and bandwidth all of which are capable of handling a variety of transmission rates from a few Gb/s to as high as many 10 of Gb/s. Installing

a new network of optical components all capable of operating at a higher transmission rate, for example, 10 Gb/s across the wide installed base of performances, is not economically feasible in today's climate. Customers are not willing to upgrade these links because they "may" have a low bandwidth fiber" (Brief Description of Related Development, page 2 line 1-7).

And another prior art, Stener, discloses that the initial rate is set to the highest possible rate (the initial rate is set to 100 Mb/s, if link failure, the rate is downshifted to 10 Mb/s, column 5, line 38-59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the initial rate at the highest possible rate (e.g. 10 Gb/s) as taught by Stener and the AAPA to the optical communication system of Alb et al and Barlev et al and Gfeller et al and Hiroshima et al so that a best use of the optical resources can be obtained.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alb et al and Barlev et al and Gfeller et al and Hiroshima et al as applied to claim 1 above, and in further view of Stener (US 6,690,650).

Alb et al and Barlev et al and Gfeller et al and Hiroshima et al disclose all of the subject matter as applied to claim 1 above. But Alb et al and Barlev et al and Gfeller et al and Hiroshima et al do not expressly disclose wherein said system is configured to operate in an optical Ethernet network.

However, Stener discloses a system configured to operate in an optical Ethernet network (Figure 1, column 3, line 1-67). Therefore, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to use the rate-adaptive system to an optical Ethernet network so that an optical Ethernet network with best use of the optical resources can be obtained.

6. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alb et al and Barlev et al and Gfeller et al and Hiroshima et al as applied to claim 1, 9 above, and in further view of Bremer et al (US 6,647,058).

Alb et al and Barlev et al and Gfeller et al and Hiroshima et al disclose all of the subject matter as applied to claims 1 and 9 above. Barlev et al discloses a network management system (NMS 444 in Figure 12). But Alb et al and Barlev et al and Gfeller et al and Hiroshima et al does not expressly disclose wherein said system is further configured to notify a network operator in the event of said error condition.

However, Bremer discloses a network management system (58 in Figure 2) used by a technician to target communication links that will benefit the most from power and/or data rate adaptation (column 9, line 43-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the network manager as taught by Bremer et al to the communication system of Alb et al and Barlev et al and Gfeller et al and Hiroshima et al so that rate adaptation can be more efficiently managed, and any fault can be more easily identified.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LI LIU whose telephone number is (571)270-1084. The examiner can normally be reached on Monday-Friday, 8:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Li Liu/
Examiner, Art Unit 2613
February 14, 2009